WHAT IS CLAIMED IS:

1. A plate-shaped quartz component for use in a plasma processing apparatus, the component comprising:

an inner perimeter;

a main surface extending outwardly from the inner perimeter;

a first portion around the inner perimeter, the first portion having a flat first region on the main surface; and

a second portion adjacent to an outer perimeter of the first portion having a smaller thickness than that of the first portion, the second portion having a second region adjacent to the first region on the main surface, the second region having a height lower than that of the first region.

2. The component according to claim 1, wherein the second region is flat and is parallel to the first region.

3. The component according to claim 1, further comprising a flat second surface opposite to the main surface, the second surface being parallel to the first region.

4. The component according to claim 1, wherein a difference of the heights of the first region and the second region is about 0.1 mm to about 2 mm.

5. The component according to claim 1, further comprising a second surface opposite to the main surface, the second surface having a beveled portion along the inner perimeter.

6. A plasma processing apparatus, comprising:

a processing chamber to accommodate a workpiece to be processed;

an electrode within the processing chamber to generate a plasma, the electrode having an outer perimeter; and

a plate-shaped quartz component that surrounds the outer perimeter of the electrode, the component comprising:

an inner perimeter;

a main surface extending outwardly from the inner perimeter;

a first portion around the inner perimeter, the first portion having a flat first region on the main surface; and

a second portion adjacent to an outer perimeter of the first portion having a smaller thickness than that of the first portion, the second portion having a second region

adjacent to the first region on the main surface, the second region having a height lower than that of the first region.

7. The apparatus according to claim 6, wherein:

the outer perimeter of the electrode has a side surface; and

the inner perimeter of the component has a side surface that faces the side surface of the outer perimeter of the electrode.

8. The apparatus according to claim 6, wherein:

the workpiece to be processed is mounted on the electrode; and

a height of the first region of the component is substantially the same as that of a surface of the workpiece mounted on the electrode.

9. The apparatus according to claim 6, further comprising a second plate-shaped component having a second main surface, the second main surface faces the first region of the component to form a gap between them,

wherein a difference between the heights of the first region and the second region of the component is not substantially larger than the gap.

10. A method of restoring a plate-shaped quartz component used in a plasma processing apparatus, the quartz component comprising a main surface, the method comprising:

forming a bulge of quartz material on a first region of the main surface such that the main surface is divided into the first region and a second region adjacent to the first region by an offset; and

machining the main surface having the bulge such that a flat surface is formed in the first region while maintaining the offset.

11. The method according to claim 10, wherein:

the machining is performed by grinding; and

a height of the offset remaining after the machining is sufficient to prevent an inadvertent grinding of the second region during the machining.

12. The method according to claim 11, wherein the height of the offset remaining after the machining is not smaller than about 0.3 mm.

13. The method according to claim 10, wherein the offset is formed by the forming of the bulge of quartz material on a flat portion of the main surface.

14. The method according to claim 10, wherein the bulge of quartz material is formed on the first region of the main surface which has been already divided from the second region by the offset.

15. The method according to claim 10, wherein:

the component further comprises a second surface opposite to the main surface, the second surface having a beveled portion along an inner perimeter of the component;

the forming of the bulge of quartz material further forms the bulge of quartz material on a side surface of the inner perimeter of the component; and

the beveled portion prevents the quartz material from flowing onto the second surface during the formation of the bulge on the side surface.

16. The method according to claim 10, wherein the main surface of the component extends outwardly from an inner perimeter of the component and the first region of the main surface is formed around the inner perimeter.

17. A method for manufacturing semiconductor devices, comprising:

mounting a plate-shaped quartz component in a plasma processing apparatus, the component having a main surface;

processing a number of semiconductor wafers in the apparatus, while exposing the main surface of the quartz component to a plasma;

restoring the quartz component damaged by the exposure to the plasma, the restoring including:

forming a bulge of quartz material on a first region of the main surface such that the main surface is divided into the first region and a second adjacent to the first region by an offset; and

machining the main surface having the bulge such that a flat surface is formed in the first region while maintaining the offset; and

re-mounting the restored quartz component in the plasma processing apparatus and processing another number of semiconductor wafers in the apparatus.

18. The method according to claim 17, wherein the plasma processing apparatus comprises an electrode to which an electric power is supplied to generate the plasma, and the component surrounds an outer perimeter of the electrode.

19. The method according to claim 17, wherein:

the plasma processing apparatus comprises a second plate-shaped component having a second main surface, the second main surface faces the flat surface in the first region of the re-mounted component to form a gap between them; and

a height of the offset remaining after the machining is not substantially larger than the gap.

20. The method according to claim 17, wherein

the processing of another number of semiconductor wafers includes supplying a processing gas:

the plasma processing apparatus comprises a second plate-shaped component having a second main surface, the second main surface faces the flat surface in the first region of the re-mounted component to form a path to guide a flow of the processing gas; and

a height the offset remaining after the machining does not significantly disturb the flow of the processing gas.

21. The method according to claim 17, wherein the main surface of the component extends outwardly from an inner perimeter of the component and the first region of the main surface is formed around the inner perimeter.

22. A method of using and restoring a plate-shaped quartz component, comprising:

using the component in a plasma processing apparatus, a main surface of the component comprising a first region and a second region adjacent to the first region, the main surface being flat throughout the first region and the second region, the using including exposing the main surface of the component to a plasma;

restoring the used component including forming a bulge of quartz material on a portion of the main surface, and machining the main surface having the bulge such that the main surface becomes flat throughout the first region and the second region;

re-using the restored component in the apparatus including exposing the main surface of the component to the plasma;

re-restoring the re-used component including forming a bulge of quartz material on the first region such that the main surface is divided into the first region and the second region by an offset, and machining the main surface having the bulge such that a flat surface is formed in the first region while maintaining the offset.

23. The method according to claim 22, further comprising following the re-restoring of the component, repeating the re-using and the re-restoring of the component.

24. The method according to claim 22, further comprising before the re-restoring of the component, repeating the using and the restoring of the component two or more times.

25. The method according to claim 22, wherein:

a height of the main surface of the component after the restoring is lower than that of the main surface of the component prior to the using; and

a height of the flat surface in the first region formed by the re-restoring is substantially the same as that of the main surface of the component prior to the using.